Claims

1. An assembly comprising a plurality of mask containers,
   each for holding one or more lithography masks, wherein
   each one of the containers has an engaging apparatus
   adapted to engage with the corresponding engaging
   apparatus on another one of the containers, such that
   two or more containers can be stacked together in a
   fixed relationship to one another, and wherein each
   mask container has an electronic tracking device, the
   tracking device having a receiver unit for receiving
   lithography data, a memory for storing the lithography
   data, a processor unit for reading or writing the
   lithography data to or from the memory, and a
   transmitter unit for transmitting the lithography data
   read from the memory.

2. The assembly as claimed in claim 1, wherein the
   engaging apparatus comprises a latch mounted on one
   face of the container, and a catch mounted on an
   opposite face of the container, such that two or more
   mask containers may be engaged by engaging the latch of
   one mask with the catch of another mask.

3. The assembly as claimed in claim 1, wherein each
   container has electrical contacts positioned such that
   contacts on two neighbouring containers in a stack form
   an electrical connection when the two containers are
   correctly positioned relative to each other.

4. The assembly as claimed in claim 1, wherein the receiver unit and the transmitter unit respectively receive and transmit radio frequency radiation.

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5. The assembly as claimed in claim 1, wherein the receiver unit and the transmitter unit respectively receive and transmit infra-red radiation.

10   6. The assembly as claimed in claim 1, wherein the memory is an EEPROM.

7. The assembly as claimed in claim 1, wherein the memory is an SRAM.

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8. The assembly as claimed in claim 1, wherein the tracking devices of the mask containers in a stack are adapted to communicate lithography data with each other.

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9. The assembly as claimed in claim 8, wherein the tracking devices in each container are programmed to identify the other containers in the stack and select between themselves one tracking device to transmit

25   lithography data representative of all the containers in the stack.

10. A manufacturing system for manufacturing semiconductor
    devices comprising:
    a plurality of mask containers, each for holding one
       or more lithography masks, each one of the
5   containers having a locking apparatus adapted to
       engage with the locking apparatus on another one of
       the containers, such that two or more containers can
       be carried together in a fixed relationship to one
       another;
10   a plurality of lithography bays;
    a transport rail system for carrying the containers
       between different lithography bays;
    wherein each lithography bay has a transmitter unit
       and a receiver unit for respectively transmitting
15   and receiving lithography data, and each mask
       container has an electronic tracking device having a
       receiver unit for receiving lithography data from a
       lithography bay, a memory for storing the
       lithography data, a processor unit for reading or
20   writing the lithography data to or from the memory,
       and a transmitter unit for transmitting the
       lithography data read from the memory to the same
       lithography bay or another lithography bay.

25 11. The manufacturing system as claimed in claim 10,
       wherein a handling apparatus is provided for
       automatically loading or unloading mask containers
       onto or from the rail system.

12. The manufacturing system as claimed in claim 11, wherein there is provided a handling apparatus for bringing mask containers into stacked engagement with one another and for releasing a container from a stack

5   or automatically removing a mask from a container.

13. The manufacturing system as claimed in claim 11, wherein there is provided a central computer with an input and output port for exchanging lithography data

10   with the mask containers and the lithography bays.

14. The manufacturing system as claimed in claim 13, wherein the rail system is provided with a traction apparatus for moving the mask containers and wherein

15   the traction apparatus is controlled by the central computer.

15. A manufacturing system for manufacturing semiconductor
    devices comprising:
    a plurality of mask containers, each for holding one
       or more lithography masks;

5   a plurality of lithography bays;
    a transport rail system for carrying the containers
       between different lithography bays, the transport
       rail system having a carrier and the mask containers
       each having an engaging apparatus for engaging with

10   the carrier such that the mask containers can be
       carried by the rail system;
    wherein each lithography bay has a transmitter unit
       and a receiver unit for respectively transmitting
       and receiving lithography data, and each mask

15   container has an electronic tracking device having a
       receiver unit for receiving lithography data from a
       lithography bay, a memory for storing the
       lithography data, a processor unit for reading or
       writing the lithography data to or from the memory,

20   and a transmitter unit for transmitting the
       lithography data read from the memory to the same
       lithography bay or another lithography bay.

16. The manufacturing system of claim 15, wherein said
25   rail system carries the mask containers in a stack.

17. The manufacturing system of claim 15, wherein said
       rail system carries the mask containers in a frame
       with slots.

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18. An assembly comprising a plurality of mask containers,
    each for holding one or more lithography masks,
    wherein each one of the containers has an engaging
    apparatus adapted to engage with an engaging apparatus
5   on another one of the containers, such that two or
    more containers can be stacked together in a fixed
    relationship to one another, and wherein each mask
    container has an electronic tracking device, the
    tracking device having a receiver unit for receiving
10 first lithography data, a memory for temporarily
    storing the first lithography data, a processor unit
    for processing the first lithography data and for
    providing second lithography data, and a transmitter
    unit for transmitting the second lithography data.
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19. A method of operating a semiconductor device
    manufacturing system, the manufacturing system
    comprising a plurality of mask containers each
    containing a single mask and each container having a

5   tracking device for transmitting and receiving data
    corresponding to the mask within the container, the
    method comprising the following steps:
    receiving lithography data from a plurality of mask
        containers, selecting two or more containers on the

10   basis of the received lithography data;
    operating a first automatic handling device so as to
        group together the selected containers in the form
        of a stack and to place the stack on a rail system
        connecting to a lithography bay having an exposure

15   tool apparatus;
    operating the rail system so as to transport the stack
        to the lithography bay;
    further operating the exposure tool apparatus to
        receive lithography data from at least one of the

20   mask containers in the stack; and,
    operating the lithography tool according to the data
        received from a mask container in the stack; wherein
        operating the lithography tool comprises at least
        one step out of the group of the following steps:

25 • removing a mask from a container;

    • inserting a mask into a container;

    • removing a mask, returning the mask to a container
      and subsequently removing another mask from a
      different container

30 • unstacking the containers in a stack

- reassembling a stack

- adding data to a mask in electronic form;

- reading data from a mask;

- exposing a semiconductor wafer or any other work-
5   product by sending electromagnetic radiation
   through a mask;

- storing a mask;

- manufacturing a mask;

- maintaining a mask;

10 - monitoring the transmission properties of a mask;

- damaging a mask, disposing of a mask, recycling a
   mask, or any other action that removes a mask from
   the factory;

- testing and measuring the properties of a mask,
15   either directly, or indirectly;

- assigning an identifier for a mask;

- assigning an identifier for a plurality of masks;
   and

- transferring information that relates to a mask
20   from a first electronic device in a first
   container to a further electronic device in a
   further container.